

14TH IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Space Debris Removal Concepts (6)

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REVIEW OF FINAL PAYLOAD TEST RESULTS FOR THE REMOVEDEBRIS ACTIVE DEBRIS
REMOVAL MISSION

Abstract

Since the beginning of the space era, a huge amount of debris has progressively been generated in space. Active Debris Removal (ADR) missions have been suggested as a way of limiting and controlling future growth in orbital space debris by actively sending up vehicles to remove debris. The EC FP7 RemoveDEBRIS mission, which started in 2013, draws on the expertise of some of Europe's most prominent space institutions in order to demonstrate key ADR technologies in a low-cost ambitious manner: net capture, harpoon capture, vision-based navigation, dragsail de-orbiting.

This paper provides a review of final payload test results before launch. A comprehensive test campaign is underway on both payloads and platform. The tests aim to demonstrate both functional success of the experiments and that the experiments can survive the space environment. Space environmental tests (EVT) include vibration, thermal, vacuum or thermal-vacuum (TVAC) and in some cases EMC and shock.

The test flow differs for each payload and depends on the heritage of the constituent payload parts. The paper will also provide an update to the launch, expected in 2017 from the International Space Station (ISS), and test philosophy that has been influenced from the launch and prerequisite NASA safety review for the mission.

The RemoveDEBRIS mission aims to be one of the world's first in-orbit demonstrations of key technologies for active debris removal and is a vital prerequisite to achieving the ultimate goal of a cleaner Earth orbital environment.